User Manual

SR250C/SR500C/SR750C

No-Break™ DC UPS

SR250C

SR500C / *SR750C (with optional V/I meter shown)*

Z367

REFER TO BACK PAGE FOR CUSTOMISED MODELS

Specifications are subject to change without notice. No liability accepted for errors or omissions.

Safety

The user is responsible for ensuring that input and output wiring segregation complies with local standards and that in the use of the equipment, access is confined to operators and service personnel. A low resistance earth connection is essential to ensure safety and additionally, satisfactory EMI suppression (see below).

HAZARDOUS VOLTAGES EXIST WITHIN A POWER SUPPLY ENCLOSURE AND ANY REPAIRS MUST BE CARRIED OUT BY A QUALIFIED SERVICEPERSON.

-

Electrical Strength Tests

Components within the power supply responsible for providing the safety barrier between input and output are constructed to provide electrical isolation as required by the relevant standard. However EMI filtering components could be damaged as result of excessively long high voltage tests between input, output and ground. Please contact our technicians for advice regarding electric strength tests.

Earth Leakage

Where fitted, EMI suppression circuits cause earth leakage currents which may be to a maximum of 3.5mA.

Ventilation

High operating temperature is a major cause of power supply failures, for example, a 10°C rise in the operating temperature of a component will halve its expected life. Therefore always ensure that there is adequate ventilation for the equipment. Batteries in particular suffer shortened lifetimes if subjected to high ambient temperatures.

Water / Dust

Every effort must be made in the installation to minimise the risk of ingress of water or dust. Water will almost always cause instant failure. The effects of dust are slower in causing failure of electronic equipment but all electrical equipment should be cleaned free of any dust accumulation at regular intervals.

Electromagnetic Interference (EMI)

Switching power supplies and converters inherently generate electrical noise. All wiring should be as short as practicable and segregated from all equipment wiring which is sensitive to EMI. Residual noise can be reduced by looping DC wiring through ferrite cores (sleeves). These are most effective as close to the power supply as possible and as many turns of the wire taken through the core (+ and - in the same direction) as the core will accommodate.

External fuse protection

Fuses or circuit breakers must be used in all battery circuits to protect against short circuits. External fuses should be used for power supplies/ chargers even though they are usually internally protected.

Connection polarity

It is critical to check the polarity carefully when connecting DC devices. Some Innovative Energies models have non-destructive reverse polarity protection but usually a reverse polarity connection will result in a blown fuse or serious damage to the device.

Glossary of terms used in our user manuals

PSU = power supply unit

BCT = battery condition test

ECB = electronic circuit breaker

ELVD = electronic low voltage disconnect

RPP = reverse polarity protection

EMI = electromagnetic interference

SNMP = Simple Network Management Protocol

LAN = local area network

The ***No-Break™ DC*** power supply is designed to provide DC power and charge lead acid batteries for critical back up applications.

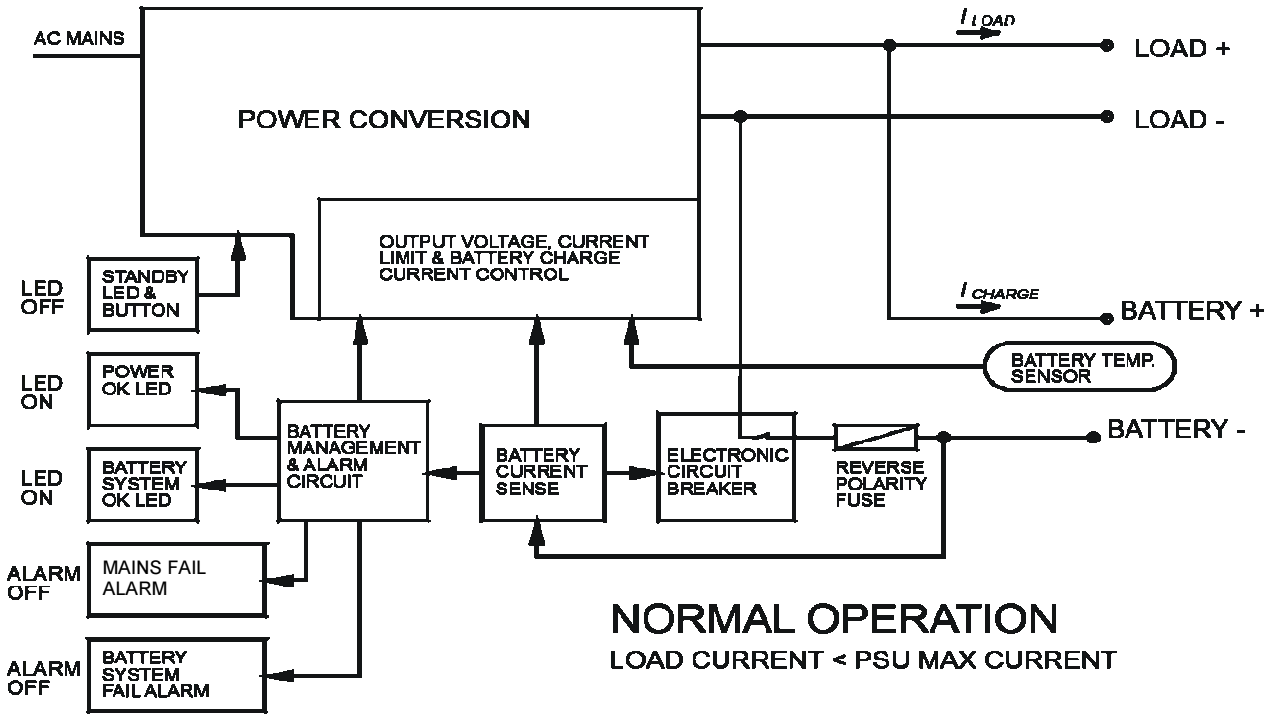
No-Break™ DC *systems* ensure maximum uptime of the system, and life of the battery, by providing:

- Accurately regulated output voltage
- Constant current limited output
- Monitoring of the battery status and battery circuit integrity
- Fast electronic battery overcurrent protection
- Deep discharge protection by disconnecting the load at low battery voltage.
- Temperature compensated output voltage using external temperature sensor
- Alarm contacts for fault monitoring
- Adjustable battery charge current limit
- Battery condition testing (BCT) - optional on “C” models, standard on “I” models which have a communication interface

Optional features:

- Communication interfaces, serial (RS232, RS485) or ethernet to enable remote monitoring of the power supply and control of the battery condition test function
- Modbus and SNMP protocols
- Internal V/I meters on 500W and 750W

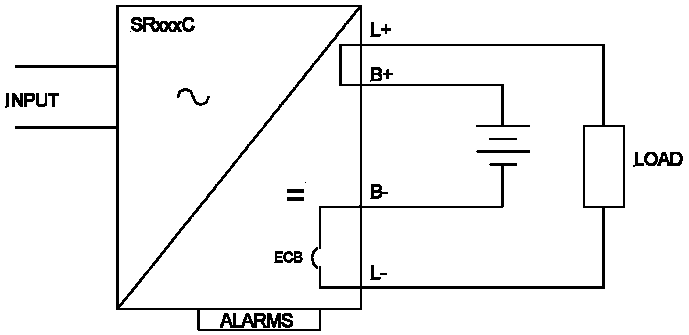
No-Break™ SYSTEM BLOCK DIAGRAM



Typical connections

#1. 1 x *No-Break™DC* charger and 1 x battery bank

This is the basic connection which is most commonly used, and provides adequate protection for the majority of systems requiring DC back up in the event of a mains power failure.

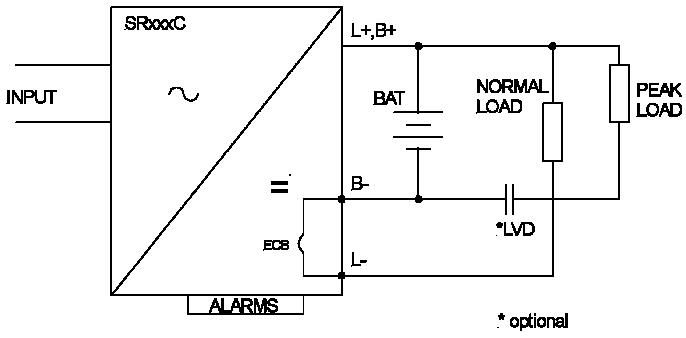


Single battery DC UPS

Alarms Available	
Power OK	YES
Battery Missing	YES
Battery Low	YES
Battery Condition Test Fail	YES

#2. Peak load connection using 1 x *No-Break™DC* charger

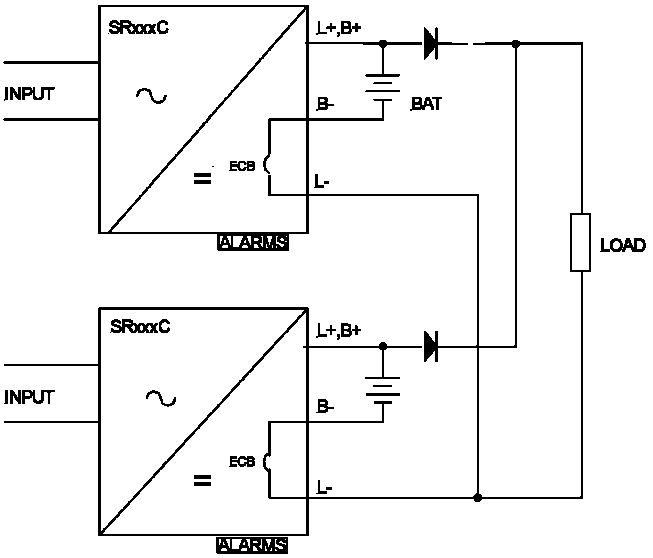
Use this connection when there is a connected load with a peak current likely to exceed 1.5 times the rated current of the charger. Standing loads are connected normally and an optional external low voltage disconnect may be used for the peak load.



DC UPS for high peak loads

Alarms Available	
Power OK	YES
Battery Missing	YES
Battery Low	YES
Battery Condition Test Fail	YES

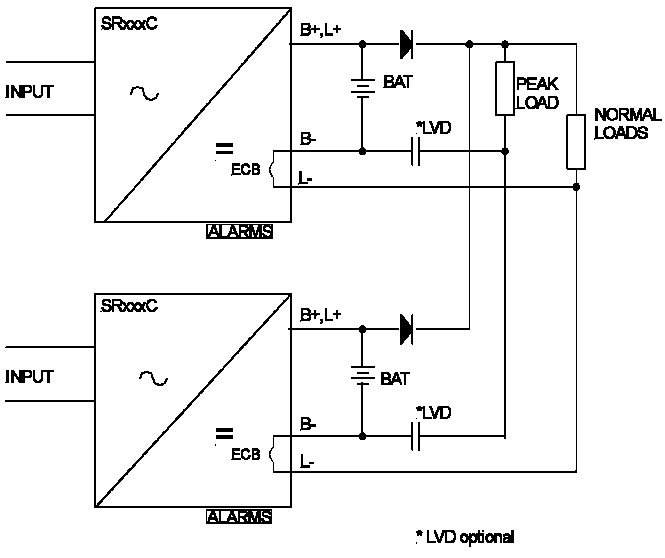
#3. 1+1 redundancy using two *No-Break™DC* chargers and two battery banks



For super critical applications

Alarms Available	
Power OK	YES
Battery Missing	YES
Battery Low	YES
Battery Condition Test Fail	YES

#4 1+1 redundancy for systems with high peak loads



Alarms available	
Power OK	YES
Battery missing	YES
Battery low	YES
Battery condition test fail	YES

CONNECTION PROCEDURE

1 Check input and output voltages of system, ensure that they match the equipment.
2 Connect battery /batteries to **BATTERY +** and **BATTERY -** terminals. Although there is built in reverse polarity protection, under some circumstances reverse polarity connection will not only result in the rupture of the internal battery protection fuse but destroy the input circuitry of the unit.
3 The ECB and battery circuit may be tested at this point. To close the **ECB** with no mains power present, briefly short together the **BATTERY –ve** and **LOAD –ve** terminals. The battery voltage will then appear at the load terminals, **BATT LOW** relay energises & **BATT SYSTEM OK** LED turns on. The **POWER OK** LED stays on for about 30s. Disconnect one battery lead briefly to open the ECB.
4 Connect load/s to **LOAD+** and **LOAD-** terminals.
5 To minimize the volt drop at the output connections always use all the terminals provided by linking them together.
6 Place temperature sensor probe near or on batteries.
7 Connect input power. Charger should be fully operational at this stage.

FRONT PANEL LEDS (with built-in switches)

BATTERY SYSTEM OK: ***LED on:*** Battery present and above V batl.

Note: If the battery condition test function is enabled, pushing this switch for approx. 2 sec will manually initiate a battery condition test.

POWER OK: ***LED on:*** Input power present
LED off: No input power or charger in standby mode

STANDBY: ***LED on:*** Charger in standby mode (no output from charger)
Note: Push standby button to turn off charger, this allows load to run off bat tery. Push button again to turn on charger.

ALARMS (refer to specific data sheets for operational details)

POWER OK: Approx. 30 second delay before activation.

BATTSYS OK: Battery detection alarm my take up to 60 minutes to activate during normal operation

ALARM & BCT RELAYS

Relay contacts shown in **de-energised** state (ie. when there is a fault condition).
Alarm relays are **energised** when power supply is operating normally. **BCT** relay is energised when battery condition test is in progress.

AUX (BCT)			MAINS FAIL (POWER OK)			BATTERY LOW (BATT SYS OK)			FG
COM	NC	NO	COM	NC	NO	COM	NC	NO	⏚

OUTPUT FUSES/ MCB RATING

The battery circuit is the one which has the highest fault current potential and fuses/MCBs should be correctly rated for the wiring used.

Parameter	*Default Settings*					*Special Setting*
V nominal	**12**	**24**	**30**	**36**	**48**	
V output (20°C)	13.8	27.6	34.5	41.4	55.2	
BatDetect (mins)	60	60	60	60	60	
Vpres	12.2	24.4	30.5	36.6	48.8	
Vbatl *[1]	11	22	27.5	33	44	
Vshutd:	11.5	23	28.7	34.5	46	
Vdisco:	10	20	25	30	40	
Bccl (%)	100	100	100	100	100	
Comms	M	M	M	M	M	
BCTim (mins)	20	20	20	20	20	
Time between BCT (days)	28	28	28	28	28	
CC Mins:	40	40	40	40	40	
CC Hrs:	23	23	23	23	23	
CC Days:	27	27	27	27	27	
MfiBCT:	30	30	30	30	30	
Allow retest after BCT fail	Yes	Yes	Yes	Yes	Yes	
T mf (hours)	4	4	4	4	4	
T mfb (mins)	5	5	5	5	5	
Scheduled BCT	Optional (no unless specified)					
SNMP VERSIONS ONLY:						
Alarm mask	Refer to SNMP user manual					
DHCP	Disabled, IP address = 192.168.2.10					

Explanation of Terms:

BatDetect: Time between battery detections

Vpres: Voltage threshold for battery detection and BCT. Note that if the voltage drops to this level during a BCT the test is aborted and the **BAT LOW/SYS** alarm shows.

Vshutd: Internal voltage level of the power supply during battery detection and battery condition tests.

Vbatl: **BAT LOW** alarm voltage level

Vdisco: Voltage at which the load is disconnected from the battery during mains fail

Bccl: Battery charge current limit as percentage of the rated power supply current

Comms (only on -i versions) Communication mode of PSU: F = continuous data stream of status
M = responds only to request made by a controller

BCTim: Length of battery condition test

CC Mins: Time in minutes between automatically scheduled BCTs

CC Hrs: Time in hours between automatically scheduled BCTs

CC Days: Time in days between automatically scheduled BCTs

Note: The total time interval between battery condition tests (BCTs) is the sum total of the three 'CC'

MFiBCT: Time in minutes before the mains fail check during the BCT (SR100 only)

T mf Max. time of a mains fail without resetting to full BCT interval

T mfb Max. time of mains fail before BCT is discontinued

***1** This alarm operates only when no input voltage present.

LED FLASH CODES					
Battery System OK LED	**Power OK LED**	**Power Stand-by LED**	**Battery System OK Alarm**	**Power OK Alarm**	**Condition**
		○	Normal	Normal	System Normal: Input power on, battery circuit is OK
		○	Normal	Normal	Battery detection in progress
○		○	Alarm	Normal	Input power on, battery system fault: 1. Internal battery fuse has opened ***or*** 2. Battery circuit wiring open circuit, battery missing, ECB has tripped
	○	○	Normal	Alarm	Input power off, battery system is OK (battery volts > Vbatl)
	○	○	Alarm	Alarm	Input power off and battery has discharged to ≤ V batl
○	○	○	Alarm	Alarm	Input power off, ELVD has activated and disconnected battery from load.
			Normal	Normal	PSU in standby, input power on, battery system OK
	○		Alarm	Alarm	PSU is in standby **and** battery has discharged to ≤ Battery Low, unit will continue delivering battery current until next level initiates ELVD.
○	○		Alarm	Alarm	PSU is in standby **and** ELVD has activated and disconnected battery from load.
		○	Normal	Normal	BCT in progress
		○	Alarm	Normal	Input power on, BCT failed (battery voltage < Vpres during BCT)

LEGEND : =On =fast flash =slow flash ○ =Off

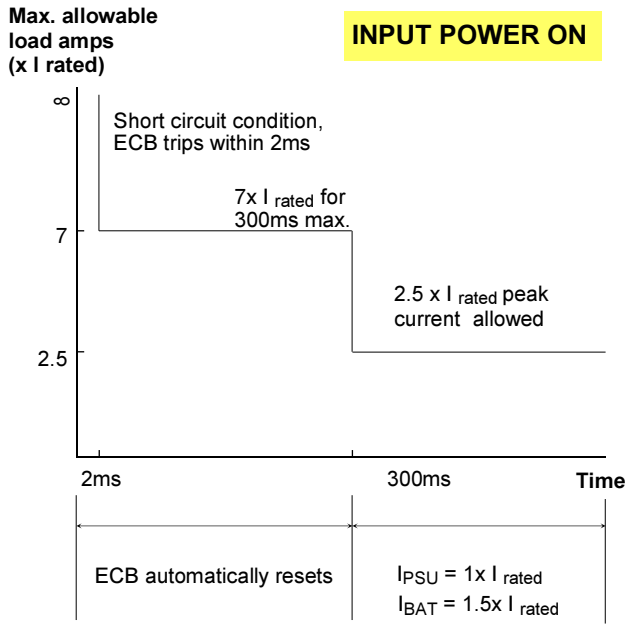
Battery condition test (BCT)

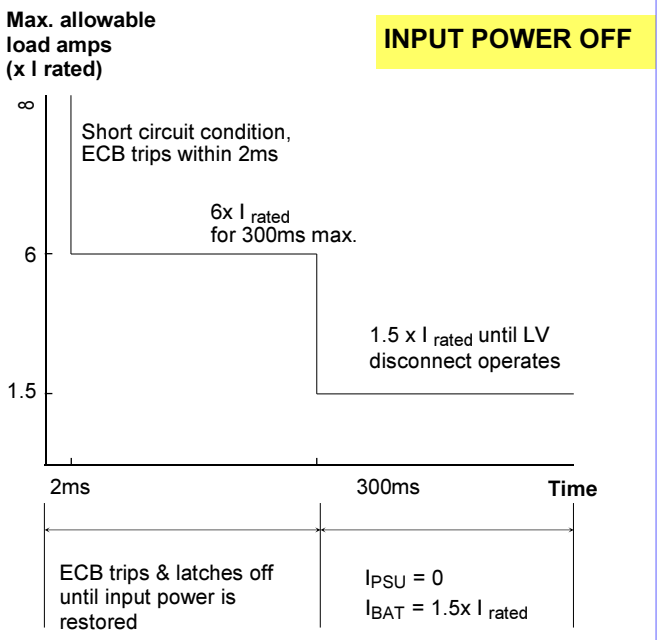
An internal jumper must be fitted to enable the automatic battery condition test function. If this jumper is fitted the battery condition test function may also be initiated manually by pushing the **BATT SYS OK** button for approx. 2 seconds.

Battery Condition Test Fail Reset

If the system fails the BCT the **BATT SYS OK** LED continues flashing and the **BATT LOW** alarm latches until either both the mains power input and the battery are disconnected briefly, or the system passes the next BCT.

OPERATION OF ELECTRONIC CIRCUIT BREAKER (ECB) FOR PROTECTION OF CHARGER & BATTERY WIRING

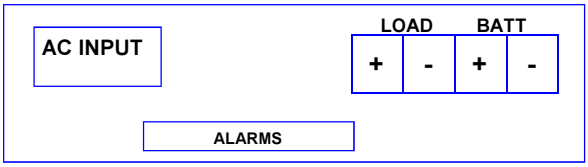




The ECB will operate on overcurrent as above & is also activated for the low voltage disconnect function on mains fail (no input power). It will reset when input power is restored, or can be manually reset by briefly shorting the **BAT-** and **LOAD-** terminals together when there is no input power.

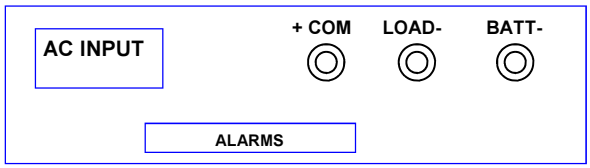
CONNECTION LAYOUTS

SR250 CONNECTION LAYOUT (Plug in/screw terminals)

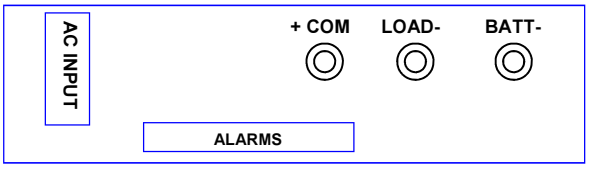


NOTE: LOAD+ / BATT+ terminals are linked internally and are connected to the **+COM** terminal on the stud connection versions.

SR250 CONNECTION LAYOUT (Stud terminals)



SR500/750 CONNECTION LAYOUT Stud terminals)



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Global Solutions Personal Focus

SR250C

incl. SR250i

- **High performance *DC* UPS system**
- ***No-Break* switching between charger & battery**
- **Battery detection - regular battery presence and battery circuit integrity checks**
- **Alarm relay outputs**
- **LED flash codes for precise state indication**
- **Deep discharge protection for batteries**
- **ECB for battery overload & short circuit protection**
- **Fused reverse battery polarity protection**
- **Automatic temperature compensated output volts**
- **Option - battery condition test (BCT)**
- **Option - communication interface allows remote monitoring & user control of BCT function - *i* versions**
- **Batteries external to charger - order separately**

♦ 24 Month Warranty

Z367

SPECIFICATIONS

All specifications are typical at nominal input, full load and at 20°C unless otherwise stated.

ELECTRICAL

Input voltage	180 - 264V, 50/60 Hz (standard) or 88 - 132VAC (internal link selectable)
Fusing / protection	5A input fuse and varistor Battery fuse plus ECB for battery circuit
Isolation	1KV DC input - output / earth
Efficiency	≥ 85%
Inrush current	Soft start circuit
Output power	250W
Output voltage	13.8, 27.6, 34.5, 41.4, 55.2VDC
Voltage adj. range	85 - 105% of Vout
Temp. compensation	Temperature sensor on 1.7m lead with adhesive pad: -4mV / °C / cell ±10%
Current limit	**PSU:** 100% rated current **Battery:** 25-100% rated current (factory set)
Line regulation	<0.2% over AC input range
Load regulation	<0.4% open circuit to 100% load
Noise	<1% output voltage
Drift	0.03% / °C
Hold-up time	20 ms without battery (nominal - max. Vin)
Turn on time	< 1 sec
Thermal protection	Yes, self-resetting
Overvoltage protection	Over-voltage protection on output at ~ 130% of nominal output voltage
EMI	CISPR 22 / EN55022 class A
Safety	IEC950 / EN60950 / AS/NZS3260
Vibration	Designed to meet MIL-STD-810F Method 514.5

No-Break™ FUNCTIONS AND ALARMS

Reverse polarity protection	Battery reverse connection will open internal fuse (and produce alarm)
Battery monitoring	Detects for presence of battery on start up, then every 60 minutes when charge current < 200mA
Battery protection	Electronic circuit breaker (ECB) operates under the following conditions:
- low battery volts	• battery voltage drops to 1.67V/cell - auto reset
- overload	• < 300ms for load > 6 x rated PSU current, allows ~1.5x rated PSU current from battery without acting,
- short circuit	• < 2ms, backed up by fuse
Indication LEDs	**Green:** Battery System OK, Power OK **Red:** Standby
Alarms	• Power OK (alarm on mains fail) • Battery System OK - alarms when battery voltage low (on mains fail) , battery missing, battery circuit wiring faulty, BCT fail (if enabled)
Alarm relay contacts	C - NO - NC full changeover rated 1A /50V DC, 32VAC
Standby mode	Turns off DC output of PSU & allows load to run off battery
Battery condition test (BCT)	Optional - if enabled, default setting = 20mins/28days). BCT can be started and stopped by the user on SR250 ***i***. BCT relay provided to control an external test load.

ENVIRONMENTAL

Operating temperature	-20 to 50 °C ambient at full load De-rate linearly at >50 °C to zero @ 70 °C
Storage temperature	-30 to 85 °C ambient
Humidity	0 - 95% relative humidity non-condensing
Cooling	Natural convection except for 12V model (fan)
Protection	IP20

250 Watt
No-Break™ DC charger for lead acid batteries

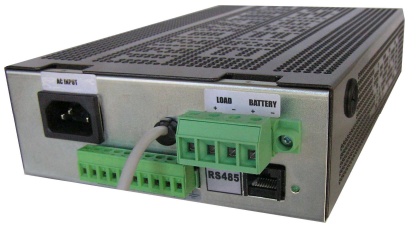
SR250C

incl. SR250i

MODEL TABLE (*ratings apply to all variants*)

MODELS	DC Output				
	Output (V)	PSU Rated (A)	Charge Limit (A) *1	Recomm. Av. Load (A)	Peak load on mains fail (A)
SR250C12	13.8	18.0	18.0	12.0	27
SR250C24	27.6	9.0	9.0	5.0	13.5
SR250C30	34.5	7.2	7.2	3.7	10.8
SR250C36	41.4	6.0	6.0	3.0	9
SR250C48	55.2	4.5	4.5	2.0	6.7

***1** This is the default setting. Please specify if a lower limit is required at time of order



SR250***i*** *(please refer to separate data sheet on comms options)*

PHYSICAL DETAILS

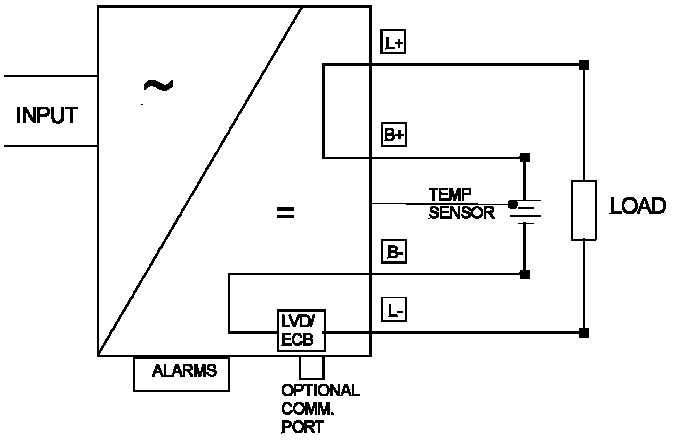
AC input connector	IEC320 input socket (included)
DC output connections	M6 brass stud or plug-in style socket & mating screw terminal block:
Alarm connections	Plug in screw terminal block
Enclosure	Powder coated & zinc plated steel
Weight	1.7kg
Dimensions	150W x 242D x 61H mm (excluding mounting feet and connections)

OPTIONS

Communications Port (SR250*i*...)	• Ethernet / SNMP v1
	• RS485 / Modbus using external converter:
	  * **+PROTOCONMB** - Modbus serial
	  * **+PROTOCONMB-OE** - Modbus TCP & HTTP
	• RS232 / IE ASCII code

Digital V/I meter	May be fitted with SR250 in 19" rack, add: **SR-METER** or **SR-METERV2/SHUNT**
19"rack mount	Single charger add: **SR-RM2U** Dual charger (front removable) add: **SR-RM2U-DUALV2**
Wall Mount Enclosure	Charger may be fitted into enclosure with MCBs and terminals. **Code: SEC-SR**

SCHEMATIC BLOCK DIAGRAM



2 x SR250C/i chargers (front removable) in 2U rack

MODEL IDENTIFICATION CODES

SR250C12 T F S L- 485 — Optional Communications Interface Port

For SR250*i* versions:
485 = RS485 **232** = RS232 **LAN** = Ethernet (ASCII)
LAN+ = Ethernet (SNMP)

Input voltage and front Panel standby switch	**L** = 230V AC + switch **U** = 110V AC + switch **H** = 110V DC + switch **M** = 230V AC + switch + 300V MOV (to be used with **IEOVPHVAC**)	Blank = 230V AC no switch **G** = 110V AC no switch **J** = 110V DC no switch
Output DC Connector type:	**S** = Stud	**X** = Plug in /screw terminal block
Fan cooled:	**F** = Fan	Blank = No fan
Temperature Compensation	**T** = Yes	Blank = No
DC output (nominal battery)	**12, 24, 30, 36, 48V**	
Function	***C*** = ***No-Break***™ DC PSU/charger ***i*** = **C** with serial or ethernet communications port	
Power	**250W**	

innovative energies

Global Solutions Personal Focus

SR500C

incl. SR500i

Optional internal V/I meter shown

- **High performance *DC* UPS system**
- ***No-Break* switching between charger & battery**
- **Battery detection - regular battery presence and battery circuit integrity checks**
- **Alarm relay outputs**
- **LED flash codes for precise state indication**
- **Deep discharge protection for batteries**
- **ECB for battery overload & short circuit protection**
- **Fused reverse battery polarity protection**
- **Automatic temperature compensated output volts**
- **Option - battery condition test (BCT)**
- **Option - communication interface allows remote monitoring & user control of BCT function - *i* versions**
- **Batteries external to charger - order separately**

♦ 24 Month Warranty

Z367

SPECIFICATIONS

All specifications are typical at nominal input, full load and at 20°C unless otherwise stated.

ELECTRICAL

Input voltage	230V AC: 180V - 264V (standard) 110V AC: 88V - 132V (on request)
Frequency	50/60 Hz
Fusing / protection	Input fuse and varistor Battery fuse plus ECB for battery circuit
Isolation	1KV DC input - output / earth
Efficiency	≥ 85%
Inrush current	Soft start circuit
Output power	500W
Output voltage	13.8, 27.6, 34.5, 41.4, 55.2VDC
Voltage adj. range	85 - 105% of Vout
Temp. compensation	Temperature sensor on 1.7m lead with adhesive pad: -4mV / °C / cell ±10%
Current limits	**PSU:** 100% rated current **Battery:** 25-100% rated current (factory set)
Line regulation	<0.2% over AC input range
Load regulation	<0.4% open circuit to 100% load
Noise	<1% output voltage
Drift	0.03% / °C
Hold-up time	20 ms without battery (nominal - max. Vin)
Turn on time	< 2 sec
Thermal protection	Yes, self resetting
OVP	Over-voltage protection on output at ~ 130% of nominal output voltage
EMI	to CISPR 22 / EN55022 class A
Safety	to IEC950 / EN60950 / AS/NZS3260
Vibration	Designed to meet MIL-STD-810F Method 514.5

No-Break™ FUNCTIONS AND ALARMS

Reverse polarity protection	Battery reverse connection will open internal fuse (and produce alarm)
Battery monitoring	Detects for presence of battery on start up, then every 60 minutes when charge current < 200mA
Battery protection	Electronic circuit breaker (ECB) operates under the following conditions:
- low battery volts	• battery voltage drops to 1.67V/cell - auto reset
- overload	• < 300ms for load > 6 x rated PSU current, allows ~1.5x rated PSU current from battery without acting,
- short circuit	• < 2ms, backed up by fuse
Indication LEDs	**Green:** Battery System OK, Power OK **Red:** Standby
Alarms	• Power OK (mains or charger fail, standby mode) • Battery System OK - battery voltage low (on mains fail) , battery missing, battery circuit wiring faulty, BCT fail (if enabled)
Alarm relay contacts	C - NO - NC full changeover rated 1A /50V DC, 32VAC
Standby mode	Turns off DC output of PSU & allows load to run off battery
Battery condition test (BCT)	Optional - if enabled, default setting = 20mins/28days). BCT can be started and stopped by the user on SR500 ***i***. BCT relay provided to control an external test load.

ENVIRONMENTAL

Operating temperature	0 to 50 °C ambient at full load De-rate linearly at >50 °C to zero @ 70 °C
Storage temperature	-10 to 85 °C ambient
Humidity	0 - 95% relative humidity non-condensing
Cooling	Fan cooled
Protection	IP20

500 Watt
No-Break™ DC charger for lead acid batteries

SR500C

incl. SR500i

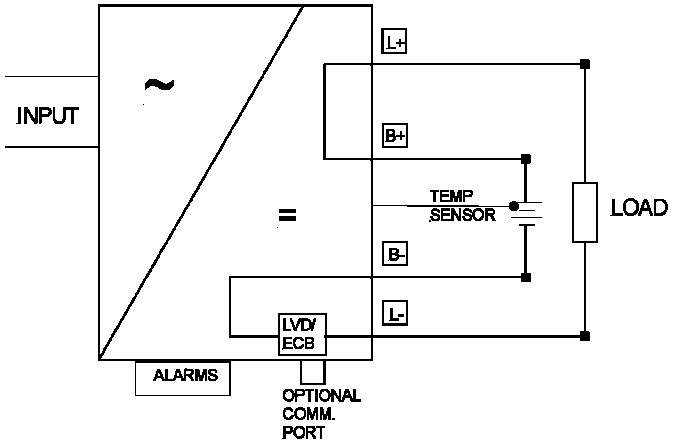
STANDARD MODEL TABLE

MODELS	DC Output				
	Output (V)	PSU Rated (A)	Charge Limit (A) *1	Recomm. Load (A)	Peak load on mains fail (A)
SR500C12	13.8	36	36	27	54
SR500C24	27.6	18	18	13	27
SR500C30	34.5	14.5	14.5	10	21.5
SR500C36	41.4	12	12	9	18
SR500C48	55.2	9	9	7	13.5

***1** This is the default setting. Please specify if a lower limit is required at time of order

Temperature Probe

SCHEMATIC BLOCK DIAGRAM



PHYSICAL

AC Input connector	IEC320 inlet socket (similar to PCs etc.)
DC Output Connections	M8 brass stud or plug-in/ screw terminal block
Alarm Connections	Plug in/ screw terminal block
Enclosure	Powder coated steel
Weight	4.3kg
Dimensions	225W x 304D x 70H mm (excluding mounting feet and terminals)

OPTIONS

19"Rack Mount	2U sub rack option: add **SR-RM2U**
Digital V/I meter	May be fitted with SR500 in 19" rack, add: **SR-METER** or **SR-METERV2/SHUNT**
Wall Mount Enclosure	Charger may be fitted into enclosure with MCBs and terminals. **Code: SEC-SR**
Parallel redundancy	Use external output diode, eg **+P50**
Internal V/I Meter	Add code **+INT-METER**

Communications Port (SR500*i*...)	• Ethernet / SNMP v1
	• RS485 / Modbus using external converter:
	  * **+PROTOCONMB** - Modbus serial
	  * **+PROTOCONMB-OE** - Modbus TCP & HTTP
	• RS232 / IE ASCII code

ACCESSORIES SUPPLIED

Mounting feet together with screws
AC power cord 1.5m with IEC320 socket & AUS/NZ plug
Mating screw terminal plug for 'X' version
Mating screw terminal plug for alarm outputs
Crimp lugs for 'S' versions

MODEL IDENTIFICATION CODES

SR500C 12 T F S L-LAN+

Communication port	**LAN** = ethernet (ASCII) **LAN+** = ethernet (SNMP) **232** = RS232 **485** =	
Input voltage and front panel standby switch:	**L** = 230V AC + switch **U** = 110V AC + switch **H** = 110V DC + switch	Blank = 230V AC no switch **G** = 110V AC no switch **J** = 110V DC no switch
Output DC Connector type:	**S** = Stud	**X** = Plug in /screw terminal
Cooling	**F** = With fan	
Temperature Compensation	**T** = Yes	Blank = No
DC output (nominal battery)	**12, 24, 30, 36, 48V**	
Function	**C** = *No-Break™DC*	***i*** = *No-Break™DC with communication port*
Power	**500W**	

innovative energies

Global Solutions Personal Focus

SR750C

incl. SR750i

Optional internal V/I meter shown

- **High performance *DC* UPS system**
- ***No-Break* switching between charger & battery**
- **Battery detection - regular battery presence and battery circuit integrity checks**
- **Alarm relay outputs**
- **LED flash codes for precise state indication**
- **Deep discharge protection for batteries**
- **ECB for battery overload & short circuit protection**
- **Fused reverse battery polarity protection**
- **Automatic temperature compensated output volts**
- **Option - battery condition test (BCT)**
- **Option - communication interface allows remote monitoring & user control of BCT function - *i* versions**
- **Batteries external to charger - order separately**

♦ 24 Month Warranty

Z367

SPECIFICATIONS All specifications are typical at nominal input, full load and at 20°C unless otherwise stated.

ELECTRICAL

Input voltage	230V AC: 180V - 264V (standard) 110V AC: 88V - 132V (on request)
Frequency	50/60 Hz
Fusing / protection	Input fuse and varistor Battery fuse plus ECB for battery circuit
Isolation	1KV DC input - output / earth
Efficiency	≥ 85%
Inrush current	Soft start circuit
Output power	750W
Output voltage	13.8, 27.6, 34.5, 41.4, 55.2VDC
Voltage adj. range	85 - 105% of Vout
Temp. compensation	Temperature sensor on 1.7m lead with adhesive pad: -4mV / °C / cell ±10%
Current limits	**PSU:** 100% rated current **Battery:** 25-100% rated current (factory set)
Line regulation	<0.2% over AC input range
Load regulation	<0.4% open circuit to 100% load
Noise	<1% output voltage
Drift	0.03% / °C
Hold-up time	20 ms without battery (nominal - max. Vin)
Turn on time	< 2 sec
Thermal protection	Yes, self resetting
OVP	Over-voltage protection on output at ~ 130% of nominal output voltage
EMI	to CISPR 22 / EN55022 class A
Safety	to IEC950 / EN60950 / AS/NZS3260
Vibration	Designed to meet MIL-STD-810F Method 514.5

No-Break™ FUNCTIONS AND ALARMS

Reverse polarity protection	Battery reverse connection will open internal fuse (and produce alarm)
Battery monitoring	Detects for presence of battery on start up, then every 60 minutes when charge current < 200mA
Battery protection	Electronic circuit breaker (ECB) operates under the following conditions:
- low battery volts	• battery voltage drops to 1.67V/cell - auto reset
- overload	• < 300ms for load > 6 x rated PSU current, allows ~1.5x rated PSU current from battery without acting,
- short circuit	• < 2ms, backed up by fuse
Indication LEDs	**Green:** Battery System OK, Power OK **Red:** Standby
Alarms	• Power OK (mains or charger fail, standby mode) • Battery System OK - battery voltage low (on mains fail) , battery missing, battery circuit wiring faulty, BCT fail (if enabled)
Alarm relay contacts	C - NO - NC full changeover rated 1A /50V DC, 32VAC
Standby mode	Turns off DC output of PSU & allows load to run off battery
Battery condition test (BCT)	Optional - if enabled, default setting = 20mins/28days). BCT can be started and stopped by the user on SR750 ***i***. BCT relay provided to control an external test load.

ENVIRONMENTAL

Operating temperature	0 to 50 °C ambient at full load De-rate linearly at >50 °C to zero @ 70 °C
Storage temperature	-10 to 85 °C ambient
Humidity	0 - 95% relative humidity non-condensing
Cooling	Fan cooled
Protection	IP20

750 Watt
No-Break™ DC charger for lead acid batteries

SR750C

incl. SR750i

STANDARD MODEL TABLE

MODELS	DC Output				
	Output (V)	PSU Rated (A)	Charge Limit (A) *1	Recomm. Load (A)	Peak load on mains fail (A)
SR750C12	13.8	54	54	40	81
SR750C24	27.6	27	27	20	40
SR750C30	34.5	21	21	15	31
SR750C36	41.4	18	18	13	27
SR750C48	55.2	13.5	13.5	10	20

***1** This is the default setting. Please specify if a lower limit is required at time of order

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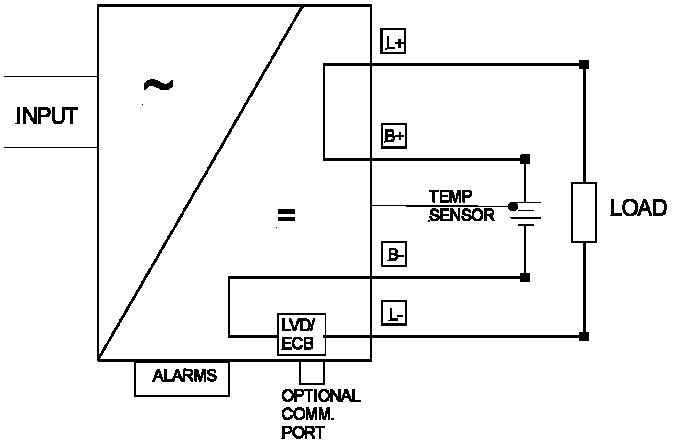

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Power	**750W**	

CUSTOMISED VERSIONS

CSR code	BASE MODEL	SPECIAL FEATURES
CSR107	SR750C24TFSL	Vout = 28Vdc, LVD = 24V, internal V/I meter
CSR108	SR250C24TSL	BCT enabled, conformal coated

TERMS OF WARRANTY

Innovative Energies Ltd warrants this product for 24 months from date of shipment against material and workmanship defects.

Innovative Energies' liability under this warranty is limited to the replacement or repair of the defective product as long as the product has not been damaged through misapplication, negligence, or unauthorized modification or repair.